

REMARKS

This amendment responds to the Office Action mailed January 4, 2005. Claims 1-17 and 24, 25, 27-30, and 32-35 are pending in the application. Claims 1, 2, 5, 8, 9, 12, 15-17, 24-26 and 29-31 were rejected. Claims 3, 4, 6, 7, 10, 11, 13, 14, 27, 28, 32 and 33 were withdrawn in view of a Restriction Requirement. Claims 1 and 8 have been amended, claims 26 and 31 canceled, and new claims 34 and 35 have been added by this amendment. Applicants assert that the pending claims are in complete condition for allowance and respectfully request reconsideration in view of the following remarks.

Restriction Requirement

Claims 3, 4, 6, 7, 10, 11, 13, 14, 27, 28, 32 and 33 were withdrawn by the Examiner in view of a Restriction Requirement. Because generic claims 1, 8, 15-18 and 22 are in condition for allowance for the reasons set forth below, Applicants respectfully request that these withdrawn claims now be rejoined and allowed.

Objections to the Claims

The Examiner indicated that claims 24, 26, 29 and 31 would be objected to as duplicative of claims 2, 5, 9 and 12, respectively, if claims 2, 5, 9 and 12 were allowed. For examination purposes the Examiner is apparently focusing on only the elected species recited in these claims as directed by MPEP § 803.02. For purposes of determining whether claims are duplicative in scope, the Examiner must consider the

claims in their entirety, i.e., in the form in which they will be interpreted upon issuance. Specifically, claims 2 and 9 are species claims that only recite "said controller is configured to indicate when the temperature sensed by said second sensor deviates from a predetermined temperature range." However, claims 24 and 29 are Markush type claims and recite that the controller is configured in one of the following manners:

- (a) to indicate when the temperature sensed by said second sensor deviates from a predetermined temperature range;
- (b) to monitor the temperature associated with the heating element over time and indicate when a rising or falling temperature is detected; or
- (c) to monitor the respective temperatures associated with a plurality of said heating elements and compare the respective temperatures to one another.

An apparatus having all the elements recited in claims 1 and 8, and further having a controller that is configured "to monitor the temperature associated with the heating element over time and indicate when a rising or falling temperature is detected" would therefore literally infringe claims 24 and 29, but would not necessarily literally infringe claims 2 and 9.

Claims 26 and 31 have been canceled thereby rendering moot any objection relative to claims 5 and 12.

Accordingly, the literal scopes of claims 2 and 9 are different from the literal scope of claims 24 and 29, respectively. For at least these reasons, Applicants respectfully assert that claims 24 and 29 should not be objected to if claims 2 and 9 are allowed. Duplicativeness is determined based on the entire scope of the claims being

compared, not the scope which happens to be under examination under MPEP § 803.02.

Claims Rejected Under 35 U.S.C. §102

Claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,722,168 to Heaney. Claim 1 is directed to an apparatus for monitoring the operation of a heating device having at least one heating element moving periodically along a predefined path, the apparatus comprising:

a first sensor configured to sense the presence of the heating element (emphasis added).

Applicants respectfully traverse the rejection of claim 1 over Heaney because Heaney does not teach or suggest each and every element of claim 1. Specifically, Heaney does not teach "a first sensor configured to sense the presence of the heating element," as recited in claim 1. Rather, Heaney is directed to a package sealing apparatus wherein a film tube 16 moves between counter-rotating cut/seal heads 17, 18. The device includes a cut/seal head motor servo control circuit 78 which includes a cut/seal head position sensor (resolver 47) depicted in FIGS. 1 and 2, and discussed at column 5, lines 39-59. As depicted in the figures and known in the art, the resolver 47 indirectly determines the angular positions of the seal heads 17, 18 based on the rotation of the drive shaft of motor 41. This determination would conventionally be accomplished by monitoring the rotation of the motor shafts and predicting the locations of the seal heads based on some pre-established relationship between the shafts and the seal heads. Because this determination is indirect, any slip in the system or any inaccuracies in the pre-established relationship information will cause the

resolver to inaccurately determine the angular position of the seal heads. Accordingly, resolver 47 is not "configured to sense the presence of the heating element," as recited in claim 1. It is this ability of the claimed invention to positively detect the presence of the heating element which enables the controller to properly perform a control function in response to the temperature sensed by the second sensor.

While Applicants believe that claim 1 is not taught or suggested by Heaney, claim 1 has been amended herein to recite that the first sensor is "configured to sense the presence of the heating element as the heating element moves past the first sensor" and that the second sensor is "mounted to allow movement of the heating element relative thereto and configured to sense a temperature associated with the heating element when said first sensor senses the presence of the heating element." In contrast, the resolver of Heaney constantly monitors the rotation of the motor shaft and therefore does not sense the presence of the heating element as it moves past the first sensor. Moreover, Heaney is directed to an apparatus wherein temperature sensors 66 are fixed to the cut/seal heads 17, 18. These temperature sensors are therefore not "mounted to allow movement of the heating element relative thereto," and do not "sense a temperature associated with the heating element when said first sensor senses the presence of the heating element," as recited in claim 1. Rather, sensors 66 move with the cut/seal heads and constantly monitor the temperatures as they move with the cut/seal heads. For at least the reasons set forth above, Applicants respectfully request that the rejection of claim 1 over Heaney be withdrawn.

Claims Rejected Under 35 U.S.C. §103

Claims 1, 2, 8, 9, 24 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,678,390 to Pruett et al. in view of Heaney. Claims 1 and 8 are the only independent claims of this rejected group. Claim 1 is directed to an apparatus for monitoring the operation of a heating device and has been amended as discussed above. Claim 8 is directed to an apparatus for sealing bags filled with articles, including a sealing station monitor as recited in claim 1. While applicants assert that Heaney does not teach or suggest all elements of claim 8, for at least the same reasons stated above with respect to claim 1, claim 8 has been amended herein, in a manner similar to claim 1, to more clearly emphasize the differences between Heaney and the claimed invention. Specifically, claim 8 has been amended to recite that the sealing station monitor comprises:

a first sensor configured to sense the presence of said heating element as said heating element moves past said first sensor,

a second sensor mounted to allow movement of the heating element with respect thereto and configured to sense a temperature associated with said heating element when said first sensor senses the presence of the heating element, and

a controller coupled with said first and second sensors and configured to monitor said first and second sensors and to perform a control function in response to the temperature sensed by said second sensor.

Applicants respectfully traverse the rejections of claims 1 and 8 over Pruett et al. in view of Heaney because the combination of these references does not teach or suggest each and every element recited in claims 1 and 8. Specifically, Pruett

et al. does not teach or suggest a first sensor "configured to sense the presence of the heating element, or that the controller interacts based on first sensor information," as admitted in the Office Action at page 6. Heaney fails to cure these deficiencies.

Specifically, Heaney does not teach "a first sensor configured to sense the presence of the heating element as the heating element moves past said first sensor," or "a second sensor configured to sense a temperature associated with the heating element when said first sensor senses the presence of the heating element," as recited in claims 1 and 8 and discussed above.

Applicants further assert that there is no motivation to even combine the resolver of Heaney with the apparatus of Pruett et al., as asserted in the Office Action. Specifically, the apparatus of Pruett et al. uses timing gears 44, 45 on the respective shafts 31, 35 to ensure that the shafts rotate at a fixed one-to-one ratio so that the sealing and crimping assemblies 22, 23 are fixed in position as they as they counter-rotate parallel to one another (see Pruett et al. at column 7, lines 16-23). There is no need for a resolver to be added to the system, since this would be redundant. For at least the reasons set forth above, Applicants respectfully request that the rejections of claim 1 and 8 over Pruett et al. in view of Heaney be withdrawn.

Claims 2 and 24 each depend from independent claim 1, and claims 9 and 29 each depend from independent claim 8. Accordingly, claims 2, 9, 24 and 29 are in condition for allowance for at least the reasons stated above for independent claims 1 and 8. Applicants therefore respectfully request that the rejections of claims 2, 9, 24 and 29 over Pruett et al. in view of Heaney be withdrawn.

Claims 5, 12, 15-17, 25, 26, 30 and 31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Pruett et al. and Heaney, in further view of U.S. Patent No. 6,035,604 to Gustafsson. Claims 5, 25 and 26 each depend from independent claim 1, and claims 12, 15-17, 30 and 31 each depend from independent claim 8. Accordingly, claims 5, 12, 15-17, 25, 26, 30 and 31 are each in condition for allowance over the combination of Pruett et al. and Heaney for at least the reasons discussed above with respect to claims 1 and 8. The further combination of Pruett et al. and Heaney with Gustafsson fails to cure these deficiencies. Specifically, Gustafsson does not teach or suggest "a first sensor configured to sense the presence of said heating element as said heating element moves past said first sensor," as recited in claims 1 and 8. Rather, sensors 92, 93 of Gustafsson only sense the lateral shift of a non-heated pressure bar 35 (see Gustafsson at column 4, lines 26-30 and column 6, lines 16-26). Gustafsson therefore does not teach or suggest a sensor configured to sense the presence of a heating element. For at least these reasons, Applicants respectfully request that the rejections of claims 5, 12, 15-17, 25, 26, 30 and 31 be withdrawn.

New Claims

New claims 34 and 35 have been added by this amendment. Claim 34 is directed to an apparatus for monitoring the operation of a heating device, similar to original claim 1, and recites that the second sensor is adjacent the first sensor, that the first sensor is configured to sense the presence of successive heating elements proximate the first sensor as the heating elements move past, and that the second

sensor is configured to successively sense temperatures associated with the heating elements as they move past. Support for claim 34 can be found in the Application at paragraphs 14 and 15, and with reference to FIGS. 1 and 2.

Claim 35 is directed to an apparatus for monitoring the operation of a heating device, similar to original claim 1, and recites that the second sensor is mounted to allow movement of the heating element relative thereto and is configured to sense a temperature associated with the heating element as the heating element moves past the second sensor. Claim 35 also recites that the controller is operative to perform a control function in response to parameters sensed by both the first and second sensors. Support for claim 35 can be found in the Application at paragraphs 14 and 15, and with reference to FIGS. 1 and 2.

Applicants assert that claims 34 and 35 are not taught or suggested by the references of record. Specifically, neither Heaney nor Pruett et al. teaches or suggests an apparatus having adjacent first and second sensors wherein the first sensor is "configured to sense the presence of successive heating elements proximate said second sensor as the heating elements move past said sensors" and the second sensor is "configured to successively sense temperatures respectively associated with the heating elements as the heating elements move past said sensors," as recited in claim 34. Heaney and Pruett et al. also do not teach or suggest an apparatus having "a second sensor mounted to allow movement of the heating element relative thereto and configured to sense a temperature associated with the heating element as the heating element moves past the second sensor," as discussed above, and "a controller

operative to perform a control function in response to parameters sensed by both said first and second sensors," as recited in claim 35. Rather, the temperature sensors of Heaney are fixed to the cut/seal heads and do not successively sense temperatures of the cut/seal heads as they move past. Heaney also does not teach or suggest performing a control function using input from a combination of a temperature sensor and the resolver, let alone a sensor that senses the presence of a heating element. Pruett et al. does not teach or suggest a first sensor configured to sense the presence of a heating element, as admitted in the Office Action and discussed above.

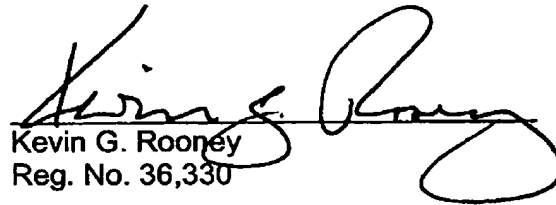
For at least the reasons set forth above, Applicants respectfully request allowance of claims 34 and 35.

In view of the foregoing amendments to the claims and remarks given herein, Applicants respectfully believe this case is in condition for allowance and respectfully request allowance of the pending claims. If any further matter is in need of resolution, the Examiner is invited to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Applicants are of the opinion that no fee is due a result of this amendment, however, if any additional charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

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